

Name: _____

Date: _____

Exam: Function Reflections (Practice version 38)

1. Let function f be defined by the polynomial below:

$$f(x) = 2x^4 + 6x^3 - 8x^2 - 3x + 5$$

Draw lines that match each function reflection with its polynomial:

Reflections

Polynomials

$-f(-x)$ •

• $-2x^4 + 6x^3 + 8x^2 - 3x - 5$

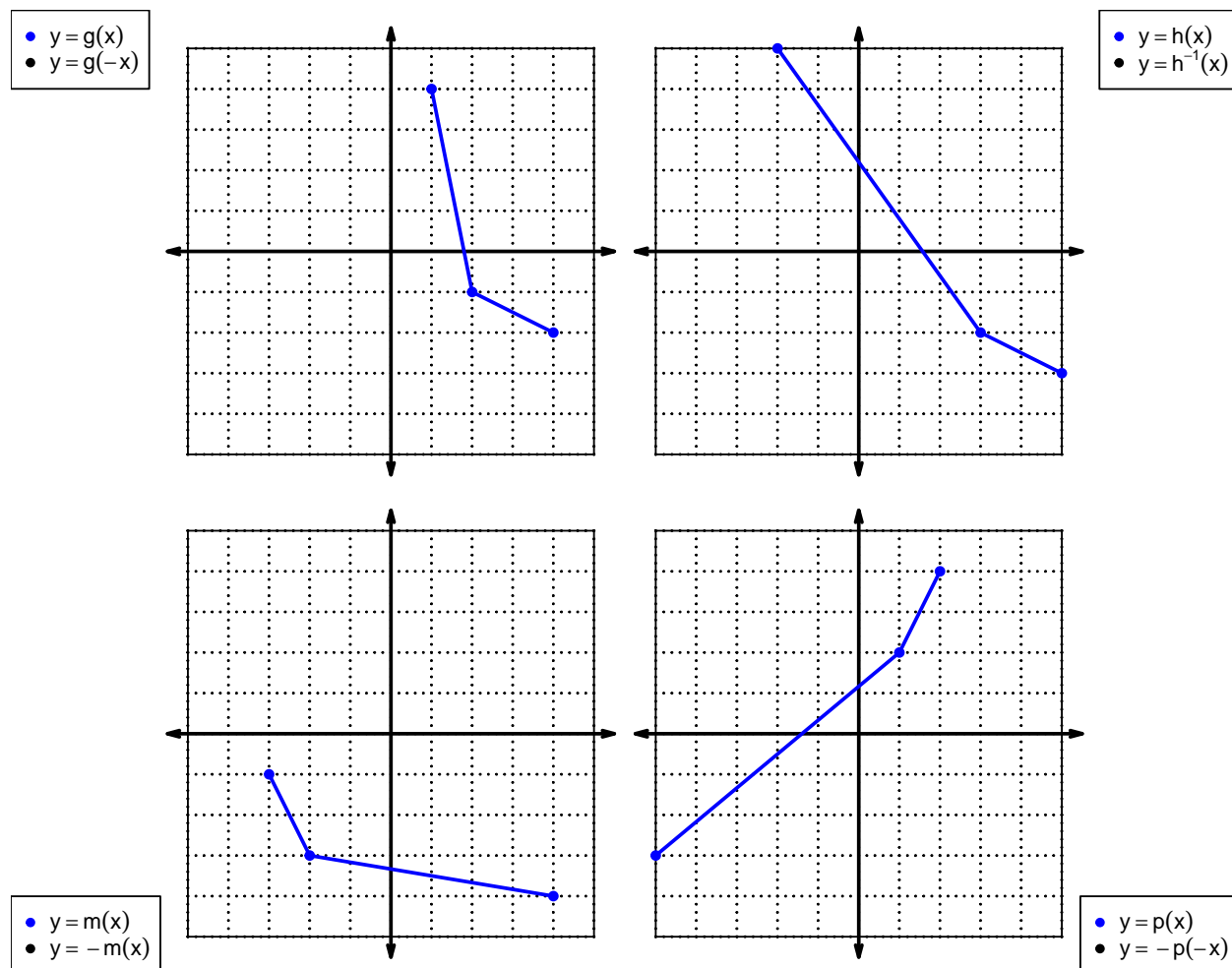
$-f(x)$ •

• $-2x^4 - 6x^3 + 8x^2 + 3x - 5$

$f(-x)$ •

• $2x^4 - 6x^3 - 8x^2 + 3x + 5$

2. In each xy plane shown below, a function is graphed with blue. Draw the indicated reflections (as a second curve, indicated in legend) with black (or with whatever you have). The x axis is horizontal and the y axis is vertical (as typical), and the scale is equal on both axes.



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For all questions on this page, the functions f , g , and h are defined by the table below.

| x | $f(x)$ | $g(x)$ | $h(x)$ |
|-----|--------|--------|--------|
| 1 | 8 | 5 | 7 |
| 2 | 9 | 1 | 8 |
| 3 | 5 | 8 | 1 |
| 4 | 2 | 3 | 5 |
| 5 | 6 | 6 | 2 |
| 6 | 7 | 2 | 3 |
| 7 | 3 | 4 | 9 |
| 8 | 4 | 9 | 4 |
| 9 | 1 | 7 | 6 |

3. Evaluate $g(2)$.

4. Evaluate $h^{-1}(9)$.

5. By filling more rows of the table, it is possible to make function f **odd**. If that were done, what would be the value of $f(-4)$?

6. By filling more rows of the table, it is possible to make function h **even**. If that were done, what would be the value of $h(-5)$?

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7. A function, f , is **even** if $f(x) = f(-x)$ for all x in the domain. A function, g , is **odd** if $g(x) = -g(-x)$ for all x in the domain.

Let polynomial p be defined with the following equation:

$$p(x) = -x^2 - x$$

- a. Express $p(-x)$ as a polynomial in standard form.

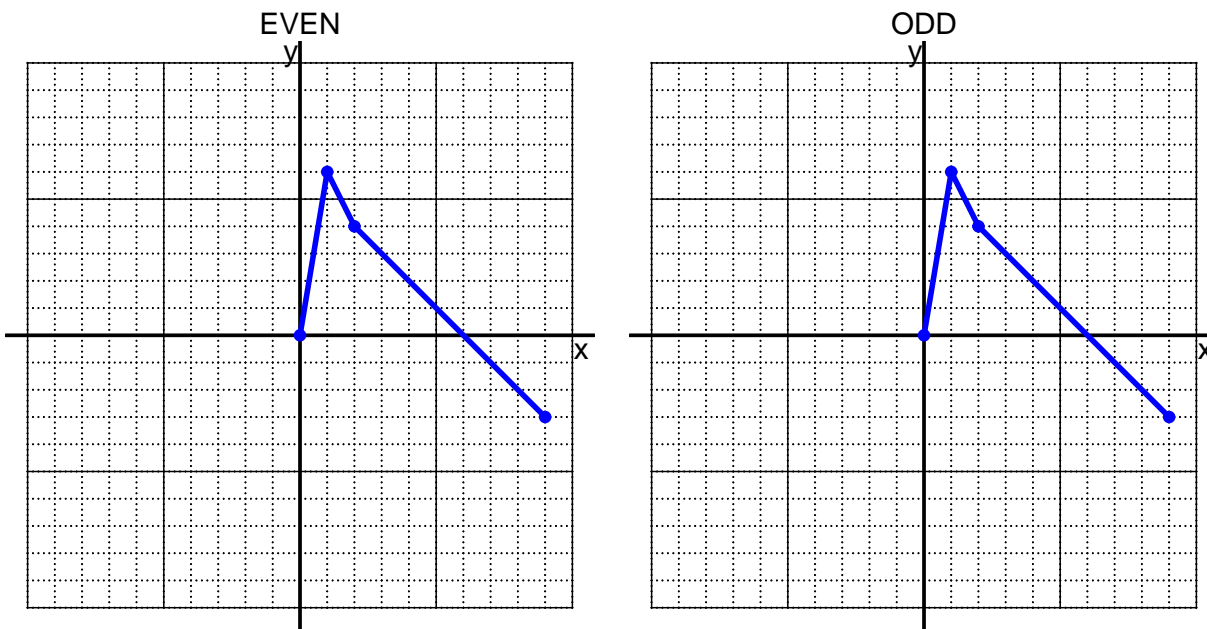
- b. Express $-p(-x)$ as a polynomial in standard form.

- c. Is polynomial p even, odd, or neither?

- d. Explain how you know the answer to part c.

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8. I have drawn half of a function. Draw the other half to make it even or odd.



9. Let function f be defined with the equation below.

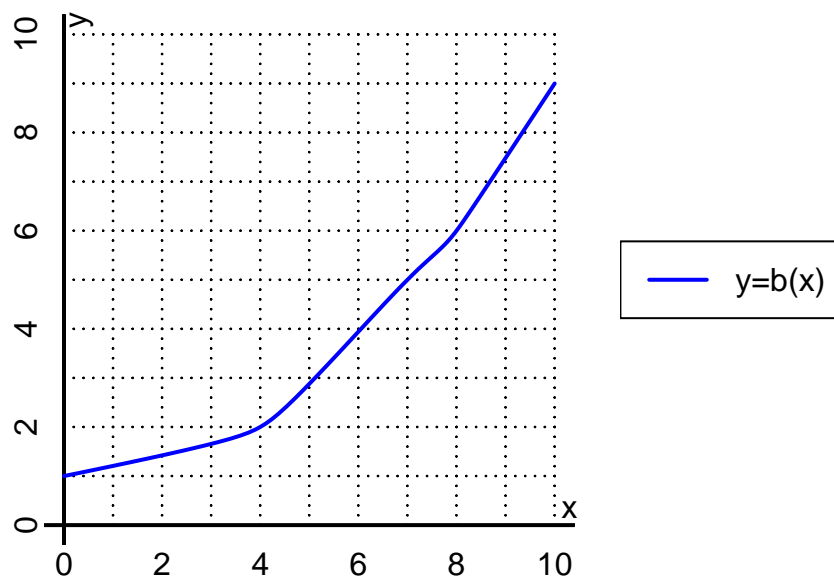
$$f(x) = 4(x - 5)$$

- a. Evaluate $f(15)$.

- b. Evaluate $f^{-1}(72)$.

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10. The function b is represented by the curve $y = b(x)$ graphed below.



a. Evaluate $b(7)$.

b. Evaluate $b^{-1}(2)$.

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11. Function f is defined by the table below.

a. Complete the columns for $-f(x)$ and $f(-x)$ and $-f(-x)$.

| x | $f(x)$ | $-f(x)$ | $f(-x)$ | $-f(-x)$ |
|-----|--------|---------|---------|----------|
| -2 | 6 | | | |
| -1 | -7 | | | |
| 0 | 0 | | | |
| 1 | -7 | | | |
| 2 | 6 | | | |

b. Is function f even, odd, or neither?

c. How do you know the answer to part b?